

# STRUCTURALLY TUNED VIBRATION BASED COMPONENT CHECKING SYSTEM AND METHOD

## Abstract

A structurally tuned, vibration-based component checking system for detecting anomalies in a component of an assembly prior to the component being installed in the assembly is provided. The component checking system operates the component being tested at a speed that is different from the speed at which the component operates during normal use in the assembly, and also under a different load. To compensate for this difference in speed and load, the component checking system is structurally tuned such that a relationship exists between the modal frequencies and speed of operation of the component checking system and the modal frequencies and speed of operation of the assembly.